

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal Form**

Section 1. General administrative information

Chief Joseph Kokanee Enhancement Project

Bonneville project number, if an ongoing project 9501100

Business name of agency, institution or organization requesting funding
Confederated Tribes of the Colville Indian Reservation

Business acronym (if appropriate)
CCT

Proposal contact person or principal investigator:

Name	Kirk Truscott
Mailing Address	POB-150
City, ST Zip	Nespelem, Wa. 99155
Phone	509-634-8845
Fax	509-634-8592
Email address	

Subcontractors. List one subcontractor per row; to add more rows, press Alt-Insert from within this table

Organization	Mailing Address	City, ST Zip	Contact Name
Biosonics Inc	4027 Leary Way NW	Seattle Wa. 98107	Colleen Sullivan

University of Montana	Div of Biological Science	Missoula Montana
Dr. Robb Leary		

NPPC Program Measure Number(s) which this project addresses.

1994, NPPC Project No. 10.8B.7

NMFS Biological Opinion Number(s) which this project addresses.

NA

Other planning document references.

If the project type is "Watershed" (see Section 2), reference any demonstrable

support from affected agencies, tribes, local watershed groups, and public and/or private landowners, and cite available documentation.

NA

Subbasin.

Upper Columbia River Sub-Basin to International Boundary, specifically Lake F. D. Roosevelt and Lake Rufus Woods.

Short description.

Assessment of kokanee stock status, strength, genetics, contribution to local resident fishery and entrainment rates out of system.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
	Anadromous fish		Construction		Watershed
X	Resident fish	X	O & M	X	Biodiversity/genetics
	Wildlife		Production	X	Population dynamics
	Oceans/estuaries	X	Research		Ecosystems
	Climate	X	Monitoring/eval.	X	Flow/survival
	Other	X	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement	X	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9001800	Lake Roosevelt Rainbow Trout Habitat/Passage improvement project	Collaborate with project personnel and share manpower equipment needs.
8503800	Colville Tribal Trout Hatchery Program	Share personnel, equipment, and shop facility

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obi	Task
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1,2,3	Objective	a,b,c	Task
1	Determine stock status and strength of natural production kokanee within study area.	A	Determine escapement strength of adult stocks by trapping spawning adult kokanee at known spawning sites. Employ foot, canoe, air, literature search's and interview local sportsmen.
		B	Locate and assess all other areas of spawning utilized by naturally producing kokanee including any shoreline area within study area.
2	Determine contribution of natural production to local fishery.	A	Conduct egg to fry survival study
		B	Assess outmigrating fry number's where possible
3	Determine Genetic status and strength of natural production kokanee.	A	Procure tissue samples from spawned out adult kokanee at spawning sites.
		B	Conduct electrophoretic analysis through contract.
		C	Compare genetic blueprint to other basin stocks and local hatchery stocks
4	Determine fish entrainment rate and species composition through Grand Coulee Dam.	A	Conduct hydroacoustic study at Grand Coulee Dam using appropriate methodology within budget.
		B	Concurrently with hydroacoustic study conduct fish species composition study.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	10/99	9/00	21%
2	10/99	9/00	10%
3	10/99	9/00	6%

4	10/99	9/00	63%
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Schedule constraints.

High water years cause trapping problems, flood waters destroy sites and equipment. We have been un-able to monitor outmigration losses through Grand Coulee dam drum gate spill episodes. This creates a large gap in data in high water budget years.

Completion date.

2001

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel		106,393.00
Fringe benefits	@27.9%	29,683.00
Supplies, materials, non-expendable property	Field and gill net supplies and equip.	18,000.00
Operations & maintenance	Boat operation and maintenance	6,000.00
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		0.00
PIT tags	# of tags:	
Travel	Includes vehicle expense, mileage, and other fees for training etc.	26,044.00
Indirect costs	calculated at 39.2% of salaries	41,706.00
Subcontracts	Hydroacoustic contract and genetic analysis	362,969.00
Other	Miscellaneous, includes office supplies, phone expense, Shredaway, utilities, Internet, etc.	9,205.00
TOTAL		600,000.00

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	600,000.00	600,000.00	350,000.00	
O&M as % of total			100%	

Section 6. Abstract

ABSTRACT:

The construction of Grand Coulee and Chief Joseph Dams in 1939 and 1956 completely and forever blocked the anadromous fishery above these Federal hydropower projects ("Blocked Areas"). The Confederated Tribes of the Colville Indian Reservation are working cooperatively with the Spokane Indian Tribe and the Washington Department of Fish and Wildlife in fisheries enhancement programs for Lake Roosevelt utilizing resident fish substitution for anadromous losses (resident fish substitution). The Chief Joseph Kokanee Enhancement project is one such resident fish substitution project that is being implemented in the "blocked area". This project was amended into the council's Fish and Wildlife program during the 1995 amendment process and began its first year of operation in 1996. The goal of the Chief Joseph Kokanee Enhancement Project will be to protect and enhance the naturally producing kokanee populations above Chief Joseph and Grand Coulee Dams in an effort to support the tribal subsistence and non-tribal recreational sport fishery in the blocked areas. The project further intends to preserve a potentially unique stock of kokanee. The status of the naturally producing kokanee population is not well documented, however spawning populations have been recorded in at least eight (8) different tributaries and in Lake Roosevelt proper. The primary objective of this project will be to determine the current status of the naturally producing populations and examine potential limiting factors to the natural production component that have not been addressed in other enhancement projects in the "blocked area" and propose potential actions based on the research findings. Potential limiting factors and research include: (1) Determine specific entrainment losses through Grand Coulee Dam and establish species composition of entrained fish; (2) determine spawner escapement (status/strength) at all historical and unknown spawning sites; (3) determine egg to fry survival rates and subsequent contribution to local fishery; (4) determine genetic status of the current naturally production population. Research data has been collected during 1996-1997 and is currently being analyzed. Data collection is ongoing. Project findings may indicate a stock in jeopardy and will identify hydropower operation, powerhouse and turbine/turbines responsible for greatest entrainment. Final outcomes may include recommendations regarding power generation, fishery regulation changes, development of captive brood program etc.

Section 7. Project description

a. Technical and/or scientific background.

Since the construction of Grand Coulee and Chief Joseph Dams in 1939 and 1956 respectively, the anadromous fishery has been completely and forever blocked. The area above Grand Coulee and Chief Joseph Dams (Blocked Area) is totally dependant upon resident fish for local fisheries. Species include but are not limited to Rainbow Trout (*Oncorhynchus mykiss*), White Sturgeon (*Acipenser transmontanas*), and kokanee (*Oncorhynchus nerka*). One species of special interest is the land-locked Sockeye Salmon or kokanee. A small natural production kokanee fishery exists in several small tributary streams to Lake Rufus Woods and Lake F. D. Roosevelt (Hisata, 1996), (Beckman, L. et. al. 1985), (Nigro, A.A., et. al. 1983), (Cash, K. 1996). Following the completion of Grand Coulee Dam in 1942, the U.S.F.W.S. planted Lake Whatcom kokanee into Lake

Roosevelt (Earnest and Spence, 1965). The plants were reported as a failure. (Stober, et al 1977). Currently, BPA funded hatcheries; Sherman Creek operated by the Washington Dept. of Fish and Wildlife and the Spokane Tribes's Chamokane Springs hatchery, plant approximately 1.5 million Lake Whatcom stock kokanee into the water's of Lake Roosevelt annually. The status, strength and genetic make-up of the natural production kokanee is unknown as is any interaction between these natural production stocks with hatchery out-planted stocks. Kokanee populations in Lake Roosevelt are affected by the annual water regimes which influence food production and entrainment (Scholz, et. al. 1985), (Griffith and Scholz, 1990), (Peone et. al. 1989), and (McDowell and Griffith 1993.)

The amount of entrainment, it's timing, duration and hydropower operations that influence entrainment is also unknown. In an effort to effectively manage natural production kokanee populations in Lakes Rufus Woods and F. D. Roosevelt, the following unknown critical factors must be evaluated: Objective 1, Enumeration of adult tributary spawners (Spawning Escapement); Objective 2, Genetic evaluation of kokanee stocks; Objective 3, Determine egg/fry survival (Natural Production Contribution to Lake Roosevelt Fishery); Objective 4, Determination of Dam Entrainment. The outcome of this project's findings will help provide a clearer picture off the dynamic fishery of Lake Roosevelt and Rufus Woods.(provide answers in paragraph form)

b. Proposal objectives.

- 1) Objective 1; Determination of stock status by adult spawner survey (Spawning Escapement).
- 2) Objective 2; Assess contribution of natural production stock to existing Lake Roosevelt fishery.
- 3) Objective 3; Determine genetic make-up of existing natural production stocks.
- 4) Objective 4; Determine fish species and number being entrained through Grand Coulee Dam.

Objective 1; Determination of stock status by adult spawner survey (Spawning Escapement).

The hypotheses of this phase or objective is; Is the spawning escapement in tributaries to Lakes Rufus Woods and F. D. Roosevelt sufficient to allow the continuous existence of a natural production kokanee fishery. Since a kokanee fishery has existed in Lake Roosevelt since the construction of the Grand Coulee Dam we assume that escapement has been sufficient for it's continuation. We also assume that suitable spawning habitat is fully utilized and that rearing habitat is sufficient (Mullan, J. W. 1986).

Methodologies for adult enumeration and genetic sampling were to utilize weir type traps that allow a count and other wise appraise the number of adult kokanee migrating to spawn (Meekin, T. K. 1994), (Blankenship, L and Robert Tivel. 1980), (Fraley J. J. et. al. 1986), (Hunter, J. G. 1948), and(Whelan, W. G. et. al. 1989). Spawned out carcasses for genetic samples are commonly found at a later date on the weir pickets. Trapped fish are anesthetized using a standard solution of Ms-222. Fish are put under, carefully handled to prevent injury while biological data as to sex, condition, origin, length and weight are

recorded. Fish are then emersed in clean water and allowed to recover before being released.

Routine foot, canoe and electrofishing vessel surveys were carried out in all known spawning area looking for further groups of spawning fish. The product of this phase will be a report detailing the status/strength of the natural production kokanee.

Objective 2; Assessment of egg to fry survival.

This objective or phase of the project assumes that spawning habitat is sufficiently utilized by kokanee to provide juvenile recruitment numbers sufficient to continue the ongoing natural production kokanee fishery in the lakes. Perhaps a more fitting title for this phase is the assessment of the contribution of juvenile kokanee to the existing fishery. During the fall 1995 spawning period many suitable redds were located and marked. After diligent notes were taken to assure that the selected redds were of a single pair spawning, the redds were capped using a simple capping device (Fraley, J. J. 1986), that consists of a metal framework supporting a net and holding bottle. These devices were anchored to the substrate by driving 1/2 re-bar through hole drilled in the frame corners. All of the devices used were destroyed by flood stage water prior to emergence, it was felt that most if not all fry were killed during the flood. Later a 5 foot Rotary Screw trap was purchased from E.G. Solutions and fished successfully near the mouth of the San Poil River. Only five (5) kokanee were counted out-migrating but a large number of Rainbow trout parr were counted that became excellent data for another BPA funded project. A test of the trap efficiency was carried out with no success but the following year it was very successful. Calculations establish trap efficiency at 13.5%.

Objective 3; Determination of the genetic make-up, of the existing natural production kokanee stock.

Assumption's include, the natural production kokanee stocks currently utilizing the San Poil and Nespelem River, and several other tributary streams to Lake Roosevelt and Lake Rufus Woods are potentially unique. They may pre-date Grand Coulee Dam or may be remnant populations from the U.S.F.W.S. Sockeye relocation project carried out in 1942, 43, and 44. A final assumption is that current hatchery stocks were not involved in any crossbreeding that may weaken a potentially unique stock. Genetic analysis is a relatively accurate, inexpensive and accepted process for stock determination (Allendorf and Ferguson, 1990). Electrophoretic analysis of fish protein using a starch plate process produces a blueprint of gene loci that allows determination, classification and differentiation of stock origin (Sage G, 1989), (Dotson T. 1990), (Brannon, E. et. al. 1994), (Scholz, A. T. et. al. 1987) and (LeBerg,, P. L. 1990). Current genetic analysis has revealed that the stock of kokanee found in the San Poil and Nespelem Rivers are unique and not related to the hatchery stock (Lake Whatcom). Further work has revealed that the kokanee obtained in the forebay of Grand Coulee Dam by the gill net portion of the hydroacoustic study are related to the San Poil/Nespelem river stock but are different. Further sample analysis is being undertaken with samples being provided by Lake Roosevelt Monitoring Project creek clerk's, public anglers and British Columbia Ministry of the Environment personnel. Current analysis is contracted to the Wild Salmon and Trout Genetics laboratory at the University of Montana ,in Missoula MT.

Objective 4; Determination of fish entrainment number and species.

Assumptions include that because of the low number of hatchery kokanee and rainbow trout seen in the creel census since 1988, the planted fish must be entraining through Grand Coulee Dam. Down stream floy tag returns indicated that possible high entrainment was occurring. At the majority of hydropower facilities the only way to monitor entrainment is to use the science of hydroacoustics (Levy, David 1991), (Marino, D.A. 1986), (Carlson, T. C. et. al. 1980) (Johnson G. E., 1994), (Parkinson, E. A. et. al., 1994) and (Steig T.W. et. al., 1995) A survey of hydroacoustic contractor was undertaken with contractors evaluated for ability to get work done within the budgetary constraints of the project. Criteria for the hydroacoustic evaluation of entrainment at Grand Coulee Dam include; the determination of fish that have a high probability of being entrained; Breakdown of entrained population into probable age classes; Target size parameters range from 50 mm to 400 mm; Diel distribution of fish in the water column; Daily weekly and monthly peaks of entrained fish; Horizontal distribution in relation to powerhouse and turbine intakes; Identification of hydropower operation responsible for greatest entrainment; Survey to be conducted annually for four seasons; annual, report within 60 days detailing all aforementioned criteria. The selected contractor is using single-beam hydroacoustic transducers that are positioned over 14 of the 24 turbine intakes. The transducers are oriented in a down looking mode and sample approximately 10 per cent of the time. Turbines were randomly selected on the basis of having a low probability on no maintenance downtime. As of this writing we have been gathering data since March 19, 1996. Entrainment figures were very high in 1996 with 816,236 entrained fish counted during the last nine month's.

c. Rationale and significance to Regional Programs.

The project has the goal of protecting and enhancing the natural production kokanee fishery within Lakes F. D. Roosevelt and Lake Rufus Woods. This fishery is important as both a tribal subsistence fishery and a non-member recreational sport fishery. This goal is within the council's 1994 Fish and Wildlife System goal of a healthy Columbia River system that supports human settlement and long term sustainability of native fish and wildlife in native habitats. This project partially **mitigates** for anadromous fish losses associated with the blocked areas above Chief Joseph and Grand Coulee Dams. This project is consistent with other efforts to mitigate for hydropower losses. In addition it protects and enhances the natural production kokanee fishery and is consistent with the goals and objectives of the Colville Confederated Tribe to provide a successful subsistence and recreational fishery for both tribal and non-tribal member's. Project objective allow collaborative and cooperative efforts to proceed with other tribes and agencies. Current B.P.A. funded project's that are administered by the Confederated Tribes of the Colville Indian Reservation work hand in hand with each other and share equipment and man-power needs as conditions warrant.

d. Project history

Project No. 9501100 is funded by Bonneville Power Administration as partial mitigation for anadromous fish lost as a result of the construction. It is a resident fish substitution project.

Monthly report's of personnel activities are submitted to Mr. Charlie Craig the C.O.T.R. for the project. A field season summary was provided to Marcella LaFayette for the first field season. An annual report for the 1996 year has been drafted and is currently being edited prior to submission to BPA. Work is progressing on the 1997 annual report.

Initially a group of literature summaries and a scope of work were developed for Bonneville. The titles of the literature summaries were as follow; Kokanee Stock Status Report and Literature Review; Report No. 2, Weir Literature Summary; Report NO. 3, Spawning Ground Survey Summary; Report No. 4, Kokanee Genetic Evaluation Report and Methodology; Report No. 5, Egg/Fry Survival Summary and Scope of Work for Spawning Success; Report No. 6, Hydroacoustic Summary and Statement of Work for Hydroacoustic Survey of Grand Coulee Dam.

No major biological opinions have been reached. As a result of the hydroacoustic study we are now aware that fish entrainment through Grand Coulee Dam is very high. Also, we now have a profile of the genetic make-up of the natural production kokanee from the San Poil River and the Nespelem River. These streams are tributary to Lake Roosevelt and Lake Rufus Woods respectively.

Adaptive management implications have resulted in the successful petition of the Washington State Department of Fish and Wildlife for a fishery regulation change. This regulatory change is in the form of a catch and release fishery for natural production kokanee.

The project has been underway since the hiring of a project biologist in July of 1995. Initial funding level for the three months of 1995 was \$29,816.00. Funding levels for 1996 were set at \$500,000.00. 1997 funding levels were set at \$600,000.00 with a reduction of 4%. Fiscal 1998 funding level was \$600,000.00 that results in a total to date of \$1,729,816.00 expended.

e. Methods. Methods:

Phase 1/Objective 1:

The use of a picket fence type of weir and associated live/holding box is an established and accepted methodology for enumerating adult salmonid spawners. Prior to installation of any weir a literature search, review and summary was completed and the summary provided to Bonneville power Administration as Periodic Report No. 2 "Weir Literature Summary". Critical assumptions in the use of this type of trap are that migrating fish will not be spooked or impeded by its presence. Foot and canoe surveys were also carried out and are not intrusive to fish populations. A limited use has been employed of an electroshocking vessel to look for other un-known un-verified spawning groups.

Phase 2/Objective 2:

Determination of egg to fry survival uses and experimental type of redd capping device used successfully by Idaho Fish and Game Dept. personnel. Before any egg/fry work commenced a literature search was undertaken, completed and submitted to B. P. A. as Periodic Report No. 5 " Egg/Fry Survival Summary and Scope of Work for Kokanee Spawning Success." The use of this type of device was discussed at length among area

fishery researchers and W.D.F.W. personnel. High flow events in both the San Poil and Nespelem Rivers caused the devices to be destroyed. We are now employing the use of a Rotary Screw Trap manufactured by E. G. Solutions of Eugene, Oregon. This type of trap monitors out-migrating fry of all species in a non-lethal non-intrusive manner. The use of this trap has been successful and will continue for the duration of the project.

Phase 3/Objective 3:

The genetic determination of the resident natural production kokanee utilizing tributary streams for spawning is dependant upon obtaining spawned-out carcasses. Samples have been difficult to obtain as natural predators such as Bear, Mink and Otter quickly find them. Samples are retained on ice until frozen, then packed in dry ice and shipped to the lab for analysis using starch-gel electrophoretic analysis to determine gene loci as the blueprint of each stock. A literature summary was provided to B. P. A. as Periodic Report No.4 "Kokanee Genetic Evaluation Report and Methodology" prior to sample collection. A collaborative effort was under-taken with other area tribes and project's for the procurement of samples for analysis. Current analysis supports the concept that these stocks may pre-date Grand Coulee Dam or are genetically unique within the upper Columbia Basin.

Phase 4/Objective 4:

The question of entrainment has been of paramount importance to the knowledge of fishery manager in the basin. A literature summary and report was submitted to B.P.A. prior to contracting for the survey. Hydropower facilities because of their nature are difficult to monitor. The science of hydroacoustic has evolved as the tool of choice. Hydroacoustic contractors were contacted with discussion following regarding cost and ability to evaluate the necessary criteria. The use of this methodology is widely accepted, is harmless to the facility, fish and is non intrusive, non-lethal. Analysis of the collected data will allow the determination of probable size/age class of the entrained fish. Species determination is not possible using this methodology. The project is employing the use of a project boat and personnel to conduct a weekly gill net survey in the forebay of Grand Coulee using vertical and horizontal gill nets. Hydroacoustic contractor analysis has provided data which indicates the level of entrainment (816,236 in 1996), pinpoints the month, diel period, powerhouse, turbine intake and hydropower operation responsible for greatest entrainment. Currently hydroacoustic data is being collected along with data regarding species composition of fish being entrained. Final data analysis will allow recommendation's to be formulated for operation changes that could reduce entrainment or lead to the implementation of a scarecrow type of project to deter fish entrainment.

and

f. Facilities and equipment.

Current project personnel conduct gill net surveys in forebay area of Grand Coulee Dam in order to determine the species composition of fish being entrained through Grand

Coulee dam. A twenty one foot (21) outboard powered aluminum work boat is utilized and owned by the project for the deployment of the gill net arrays. The arrays usual consist of three (3) vertical nets deployed inside the logboom. The nets are of variable mesh design with net size ranging from 3/4 inch to 4 in square mesh. Three vertical nets make up an array. A vertical net is 20 ft. in width and 250 feet long. Each net has two 10 foot panels of a different mesh size. Sizes graduate in 1/2 in increments to the 4 in maximum size. Horizontal nets are also fished inside and outside the logboom at varying depths. Each horizontal net is 20 ft. deep and 200 feet long. Mesh size varies the same as in the vertical nets. A horizontal array consists of a pair of nets fished with the large/small mesh in opposition to one another. Project work boat has a davit lift arm with a remote control winch capstan installed. Nets are deployed for 24 hrs. after all safety clearance's have been obtained and strict lock-out procedures followed according to the BOR rules. Project personnel are in possession of a Washington Department of Fish and Wildlife, Scientific Collection Permit. All captured fish are examined for species using an Inland of Fishes of Washington Handbook (Wydoski and Whitney) as a key. Data pertinent to origin, length, weight sex etc is recorded. Bi-monthly catch summaries are provided to the Washington Dept. of Fish and Wildlife regional managers. An annual summary is provided to the State Dept. Director. Edible species killed in the net process are disposed of by cleaning and providing to the Colville Tribes Food Distribution program/Senior Citizens program. Inedible species or spoiled fish are disposed of in the Tribal landfill located in Nespelem, Wa., according to the provisions of the permit. Other specialized equipment include creel boards, electronic scales, flow meters and picket fence type weirs. The weirs and holding/live boxes are constructed using aluminum tubing as pickets and side bars. Weirs are custom built on site and anchored in place using 1/2-3/4 in iron re-bar.

This project also owns/uses a E. G. Solutions made 5 ft. Rotary Screw trap. This trap is anchored at a selected site near the mouth of the San Poil River and monitors the out-migration movements of all fish species using the drainage for spawning. Summaries of all data collected is shared with all local funded BPA project's and are presented in the annual report submitted to the funding agency.

The project also owns Microscan Micron 486 computer with pentium. A keyboard, color monitor, and Hewlett - Packard laser jet printer are included in package as are various software programs.

Project personnel also use many hand tools which are kept in a locked tool compartment in the GSA leased vehicle. Some fabrication/repair work is done in the Colville Tribal Trout Hatchery Complex.

On site equipment storage is inadequate.

g. References.

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Section 8. Relationships to other projects

This project coordinates all activities with other local Indian Tribe's that include the Spokane Tribe of Indians, Kalispell Indian Tribes, Yakama Indian Nation, and Coeur d Alene Indian Tribes. The project Biologist participates in local committees that include

the Lake Roosevelt Forum and the Lake Roosevelt Hatchery Coordination Team consisting of Colville and Spokane Indian Tribal Hatchery manager's, Washington Dept. of Fish and Wildlife hatchery manager's and WDFW's regional fisheries managers and U.C.U.T fisheries research center at EWU.. Research data is collected and shared with this group and all interested parties of the region. Interpretation of data has resulted in requesting changes to fishery regulations. Annually, applications are submitted to the Washington Department of Fish and Wildlife for a Scientific Collection Permit This project interact with other BPA funded project managers in all phases of Fishery Management by providing data, input support and guidance.

Section 9. Key personnel

Project Biologist: Richard W. LeCaire.

Education: Associate in Arts Degree, 1988, Spokane Fall's Community College, Colville Wa. campus, General studies. Bachelor of Science Degree. Eastern Washington University, 1990. Zoology Major, emphasis on fisheries and water related studies. Minor in Environmental Studies Completed 10 credit hours of post graduate directed studies regarding fisheries and wildlife habitat.

Job Experience: Varied, Employed as underground lead miner, lead/zinc concentrate mill leadman, 19 years in sawmill as debarker operator and sawyer .Computer literate and proficient in many programs. Fisheries experience; volunteer fish hatchery laborer, two years as lab technical for U.C.U.T. fisheries research center at EWU doing scale analysis, stomach content analysis and electroshocking vessel experience.. Two summers experience with Colville National Forest, Republic and Colville Ranger District performing stream surveys and population estimated using backpack electrofishing gear. Trained in Hankins-Reeves visual estimation techniques. Two years as fisheries technician for Washington Dept. of Fish and Wildlife., Three years experience as Fisheries Biologist for Colville Tribes in their Timber Fish and Wildlife (TFW) program monitoring fisheries concerns related to timber harvest. Trained in TFW Ambient monitoring techniques at Northwest Indian Fisheries Commission. Co-Chair of DNR/TFW Field Implementation Committee in Olympia for 1 year. Co-Chair of Washington DNR N. E. region, Upper Columbia Basin Working group (UCB). Certified Watershed analysis professional in Fisheries and Riparian Function module's. Completed a DNR/TFW watershed analysis Fisheries module on the Huckleberry Watershed in 1994. Life time area resident with extensive local fishery knowledge especially in the Columbia river and Lake Roosevelt. Full time employee working in access of 2080 hr per year.

Supervisory Fisheries Tech I.: Stephen Francis

High school graduate, Colville Tribal member Attended WSU for three years as a natural science major. Eight years experience with State of Hawaii Park service as natural resource technician in animal control and fire control. Experienced as cattle ranch foreman on island of Hawaii. Grew up on local farm, is an avid fisherman with extensive knowledge of local fishery in upper Columbia. Two years experience as Colville Tribal Fish and Wildlife Enforcement Officer. Current duties include supervision of field crew in safe efficient gill net operation, boat operator, supply procurement, schedules and clearances for netting, adult and juvenile trapping, equipment repair etc. Computer

literate. Full time employee works 2080 hr per year.

Fisheries Aide I;

Michael McCartney, High School graduate, Colville Tribal member, Experienced in home construction and remodeling. Experienced fisherman, has excellent working knowledge of local fisheries, Current duties include assistance of biologist and tech in all phases of project that include construction of adult weirs, deployment of screw trap, removal and routine maintenance of traps that include weekends and holidays when necessary. Computer literate, full time employee working 2080 hr per year.

Temporary Fisheries Aide;

Lincoln Feddersen, High School graduate, Colville Tribal member, extensive mechanical, welding, fabrication and fisheries experience. Computer literate and trained in several software programs. Has several years experience as a Fisheries Tech. in a tribal program working with Okanogan River Sockeye salmon. Current duties will include routine welding repair of field equipment prior to field season. Will help with deployment of screw trap and other various duties. Part time temporary employee budgeted for 1040 hrs per year, may only work 520 hrs.

Section 10. Information/technology transfer

Annual report's to Bonneville Power Administration will be published and shared through-out region with interested agencies and tribes. Four preliminary report's have been submitted that include (1) Stock Status report; (2) Weir Literature Summary; (3) Spawning Ground Survey Summary and (4) Review of Kokanee Genetic Literature Summary. 1995 Field Season Summary completed and submitted to Marcella LaFayette of Bonneville Power Administration. Draft copy of the 1996 annual report is being edited prior to submission. 1997 Annual Report is being developed while awaiting final report from hydroacoustic contractor, BioSonics Inc.

Project progress report's are written semi-annually and submitted to the local press that include the Colville Tribal Tribune, Spokesman Review, Star, Wenatchee World and Statesman Examiner.

As part of the agreement for the Scientific Collection Permit an annual summary is written and presented to Washington Dept. of Fish and Wildlife. The report contains a summary of all adult, and juvenile fish of all species caught using the methods described in permit.

Information is also shared with presentations of findings at Bonneville Power Administration sponsored "Annual International Kokanee Workshop" at various regional locations and at other regional gatherings that include the "Lake Roosevelt Forum" and Lake Roosevelt Hatchery Coordination Team meetings.. Final analysis and summary will include recommendations regarding hydropower operations that effect lake levels,

drawdown etc.